



CONSTRUCTION QUALITY CONTROL PLAN

SKINNER LANDFILL SITE BUTLER COUNTY WEST CHESTER, OHIO

Prepared for:

Skinner Landfill Work Group
c/o Ben Baker
2020 Dow Center
Midland, MI 48764

Prepared by:

Earth Tech, Inc.
200 Vine Street
Wilder, KY 41076

FINAL
February 2001

Project Number 38335

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1.0 INTRODUCTION

This Construction Quality Control Plan (CQCP) is prepared in conjunction with the Remedial Design for the Skinner Landfill, located in Butler County, West Chester, Ohio. The plan addresses the Quality Control Program developed and to be utilized by Earth Tech, Inc., (Earth Tech) and their subcontractors, during the Remedial Action (RA) construction phase and will be implemented to assure the quality of workmanship and the installation of integrity of the geosynthetic and soil cover, the groundwater interceptor system, the gas vent system, and the groundwater monitoring well/piezometer system.

2.0 DEFINITIONS

The following are definitions pertinent to this document and the other RA construction plans.

Quality Control: Quality Control refers to those actions taken to provide for materials and workmanship that meet the requirements of the **design plans and specifications**. The manufacturers, suppliers, contractors, and installers of the various components of the remedial action shall provide quality control.

Quality Assurance: Quality Assurance refers to means and actions employed to provide conformity with contractual and regulatory requirements as outlined in the CQAP.

Construction Quality Control (CQC) Manager: The CQC Manager will be responsible for Quality Control during the RA phase of the project. The CQC Manager is Rick Warwick of Earth Tech

Construction Quality Control (CQC) Manager Designee: The CQC Manager designee will be responsible for Quality Control in the absence of the CQC Manager during the RA phase of the project. The CQC Manager designee is Tim Meade of Earth Tech

Construction Quality Assurance (CQA) Engineer: The CQA Engineer will be responsible for Quality Assurance during the RA phase of the project. The CQA Manager is Ron Roelker of Earth Tech and a registered P.E. in the State of Ohio.

Project Manager: The Project Manager is the official representative of the Owner. The Project Manager is Ben Baker of the Skinner Landfill Work Group

Design Engineer: The Design Engineer is the individual and/or firm who prepares the design, including project plans and specifications for the lining system and groundwater interception system. The Design Engineer is Rust (Earth Tech).

Field Supervisor: The Field Supervisor is responsible for directing day to day construction activities during the RA phase of the project and reports directly to the CQC Manager. The Field Supervisor is Tim Meade of Earth Tech.

3.0 QUALITY CONTROL ORGANIZATION

3.1 Description

Appendix I contains an organizational chart of the QC Organization for the Skinner Landfill Project.

3.1.1 Construction Quality Control Manager

The Earth Tech CQC Manager, Rick Warwick, will be responsible for overall management of CQC and have the authority to act in all CQC matters to see that construction is being conducted in a manner consistent with the plans and specifications. Appendix II contains the qualifications of Mr. Warwick to act in the capacity of CQC Manager. In the absence of Mr. Warwick, Mr. Tim Meade will serve as the CQC Manager designee. Appendix II also contains the resume of Mr. Meade detailing his qualifications to act in this capacity. The CQC Manager or his designate will be on-site at all times during construction and will be responsible for all quality control testing, reviewing, submitting, and coordinating shop drawing submittals, providing samples, and coordinating with CQC personnel.

The CQC Manager will provide daily construction reports that document all testing and describes construction activities of that day. The CQC Manager will send the daily reports to the Project Manager, Mr. Ben Baker of the Skinner Landfill Work Group (SLG). Additionally a copy will be sent to the CQA Engineer, Mr. Ron Roelker of Earth Tech and a copy of these reports will be available on-site for review.

With the assistance of the CQC staff, the CQC Manager will perform the following checks of each definable feature of the work. Definable features of the work are itemized in Section 8.0.

- A review of applicable specifications.
- A review of the contract plans.
- A check to assure that all materials and/or equipment to be used have been tested as necessary and meet the requirements of the project specifications.
- A check to assure that provisions have been made to provide required control inspection and testing.
- Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the contract.
- A physical examination of required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.
- A review of the appropriate activity hazard analysis to assure safety requirements are met.
- Review and understanding of procedures for constructing the work including repetitive deficiencies, documentation of construction tolerances and workmanship standards.
- A check to ensure that the portion of the plan for the work to be performed has been accepted by the CQA Engineer.
- A check of preliminary work to ensure that it is in compliance with contract requirements. Review minutes of the preparatory meeting.
- Verification of full contract compliance. Verify required control inspection and testing.
- Establish level of workmanship and verify that it meets minimum acceptable workmanship standards.
- Resolve differences between parties.

A meeting shall be conducted by the CQC Manager and attended by other CQC personnel (as applicable), and the Field Supervisor responsible for the definable feature before work on the definable feature is begun. These meetings are specifically designed to address how the work will be done in accordance with the specifications and contract. The CQC Manager will discuss the pertinent topics identified after his review of the items listed above. The results of the above actions shall be documented by separate minutes prepared by the CQC Manager and attached to the daily CQC report.

At the completion of all work or any increment thereof established by the schedule, the CQC Manager shall conduct an inspection of the work and develop a deficiency list or "punch list" of items which do not conform to the approved plans and specifications, and shall include the estimated date by which the deficiencies will be corrected. The CQC Manager or staff shall make a second inspection to ascertain that all deficiencies have been corrected.

3.1.2 Construction Quality Control Technicians

In addition to the CQC Manager, Earth Tech will provide various numbers of CQC Technicians to perform the Quality Control Tasks required in the job specifications. The CQC staff shall be at the site of work at all times during progress of the work, with authority to take any action necessary to ensure compliance with the contract. The staff will be of sufficient size to ensure adequate CQC coverage of all work phases, work shifts, and the work crews involved in the construction. These personnel will be fully qualified by experience and technical training to perform their assigned CQC responsibilities.

3.2 Authorization

The CQC Manager will have sufficient authority to adequately perform the duties outlined herein including authority to reject material that does not meet project specifications or stop work which is not in compliance with the contract. The CQC Manager shall issue letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities.

4.0 TESTING

The control, verification, and acceptable testing procedures for each specific test, including test name, specification requiring test, feature of work to be tested, person responsible for each test, and an estimate of the number of tests required is contained within the project specifications and Construction Quality Assurance Plan (CQAP). Tables 1 through 4 provides a list of testing requirements for each portion of work. Results from the tests will be submitted to the CQA Engineer within 72-hours after receipt and will be available on-site for review.

5.0 INSPECTIONS

The CQC Manager will be responsible for performing inspections of construction activities that require monitoring. The CQC Manager will work with the CQA Engineer and review the daily reports and/or logs, field notes, test data sheets and any other supporting data sheets prepared for the various work items.

Prior to beginning a certain phase of work, the CQC Manager and the CQA Engineer shall discuss the various testing procedures proposed by the CQA Engineer and outlined in the CQA Plan. The CQC Manager and the CQA Engineer shall agree on the proposed testing procedures to insure that the CQA Plan is properly implemented.

A Log Book will be kept by the CQC Manager or his designee, documenting the date, time, type of inspection, purpose of inspection, and the results of the inspection. All entries will be signed by the CQC Manager on a daily basis. The CQC Manager will provide the Project Manager with written documentation

of all inspections and resolutions of deficiencies.

6.0 DEFICIENCIES

The CQC Manager shall record deficiencies observed during the required inspections and record these in the Log Book. The Log Book will document deficiencies and corrective action when a construction material or activity is observed or tested and found to be substandard to the requirements of the CQA Plan. Documentation of deficiency identification and corrective action may include, but not be limited to, the following information:

- A description of the deficiency, including reference to other data or observation leading to the determination of the deficiency.
- Location of the deficiency, including how and when it was discovered and an estimate as to how long it may have existed.
- An opinion as to the probable cause of the deficiency.
- A recommendation as to corrective action for resolving the deficiency. If corrective action has already been implemented, then observation and documentation to illustrate the resolution of said deficiency will be included. If it has not been resolved by the end of the day upon which it was discovered, the report will clearly state it as such, with all subsequent Log Book entries indicating the status of the deficiencies until resolved.

If the deficiency has not been resolved, the CQC Manager, CQA Engineer, and any subcontractor responsible for the work will discuss necessary corrective actions. A description of such deficiencies and corrective actions implemented will be provided to the Project Manager.

The CQC Manager, CQA Engineer, and the Project Manager will determine if the deficiency is an indication of a situation that may require input from the Design Engineer and/or changes to the plans and specifications and/or the CQA Plan.

7.0 DAILY REPORTS

7.1 Daily Reports

The CQC Manager or his designee will prepare daily reports on prescribed forms (attached as Appendix III) outlining all work performed on the site for that day. An additional report will contain, at a minimum, field notes, observations, deficiencies discovered, and corrective actions taken. Both of these reports will be available on-site for review. A summary of all supporting data sheets along with final testing results and Field Supervisor's approval of the work shall be required upon completion of construction.

The Project Manager shall immediately be made aware of any nonconformance with the project specifications. In particular, the Project Manager shall be informed before the work in question is covered by overlying system layers. The Project Manager shall then determine its cause and direct appropriate changes or recommend the appropriate changes. When this type of evaluation is made, the results shall be documented, and any revision to procedures or project specifications shall be approved in writing by the Owner and Design Engineer.

8.0 DEFINABLE FEATURES OF THE WORK

The definable features of the work (tasks which are separate and distinct from other tasks) for the Skinner Landfill RA construction project are as follows:

- Waste Relocation
- Final Cover
 - Subgrade
 - Gas Venting Layer
 - GCL
 - Geomembrane
 - Drainage Layer
 - Vegetative Soil Cover
 - Vegetation
- General Earthfill
- Gas Vents/Gas Probes
- Groundwater Interceptor System Trench
- Groundwater Monitoring Wells/Piezometers
- Groundwater Cut-off Wall
- Groundwater Interception System Force Main

TABLES

TABLE 1**CONSTRUCTION DOCUMENTATION SOILS TESTS AND FREQUENCY
SKINNER LANDFILL**

Test Type	Test Method	Test Frequency
General earthfill (subbase only):		
o Field density and moisture content	ASTM D2922	2 tests/acre/lift
o Moisture-density relationship (Standard Proctor)	ASTM D689	1/material type
o Grain-size distribution (sieve and hydrometer)	ASTM D1140, D422	3/material type
o Atterberg Limits	ASTM D4318	3/material type
Topsoil (post-construction):		
o pH, nitrogen, phosphorous, and potassium		1 per 10 acres
o USDA soil classification		Visual
o Survey - grade and thickness		100 ft grid

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TABLE 2

**SAMPLE QUANTITIES, CONTAINERS, PRESERVATIVES, AND
PACKAGING REQUIREMENTS
SKINNER LANDFILL
GEOTECHNICAL TESTING**

Analysis	Container	Preservation	Holding Time	Volume of Samples	Shipping	Normal Packaging
Moisture-Density Relationship/Moisture Content	Sealed Plastic Bag or Bucket	None	None	10 to 15 lbs	Regular mail	
Atterberg Limits	5 gal plastic bucket	None	None	Fill bucket	Regular mail	
Grain-size distribution	5 gal plastic bucket	None	None	Fill bucket	Regular mail	
Permeability	5 gal plastic bucket	None	None	Fill bucket	Regular mail	
Gradation determination	5 gal plastic bucket	None	None	Fill bucket	Regular mail	
pH, Nitrogen, Phosphorous, and Potassium	2 8-oz glass jars	None	None	Fill jars	Regular mail	Vermiculite

TABLE 3

**MATERIALS QUALITY CONTROL PROGRAM
SOIL/BENTONITE
SLURRY TRENCH CUT-OFF WALL**

MATERIALS				
SUBJECT	STANDARD	TYPE OF TEST	MINIMUM FREQUENCY	SPECIFIED VALUES
Water	--	- pH - Total Hardness	Per water source or as changes occur	As required to properly hydrate bentonite with approved additives
Additives	--	Manufacturer certificate of compliance	One per truckload	As approved by Engineer
Bentonite	API Std 13A	Manufacturer certificate of compliance	One per truckload	Premium grade sodium cation montmorillonite
Backfill soils	--	Selected soils approved by the Engineer	One per source	Consistent with Design Mix
Prepared for placement into the trench	API Std 13B	- Unit Weight - Viscosity - Filtrate	2 set per shift or per batch (pond) One per truckload	Unit weight ≥ 1.03 gm/cc V ≥ 15 centipose or 40 sec-Marsh @ 68° Loss ≤ 30 cc in 30 min @ 100 psi
SLURRY				
In Trench	API Std 13B 1	- Unit Weight	2 per shift at point of trenching	Unit weight = 1.03-1.50 gm/cc
BACKFILL MIX				
At Trench	ASTM C 138 ASTM C 143 ASTM D 422 EM-1110-2-1906	- Unit Weight - Slump - Gradation - Permeability	2 per shift	15 pcf \geq slurry density Slump 2 to 6 inches Consistent with Design Mix K $\leq 10^{-7}$ cm/sec

The results of all field testing done will be recorded on field report tables and retained for the final documentation report.

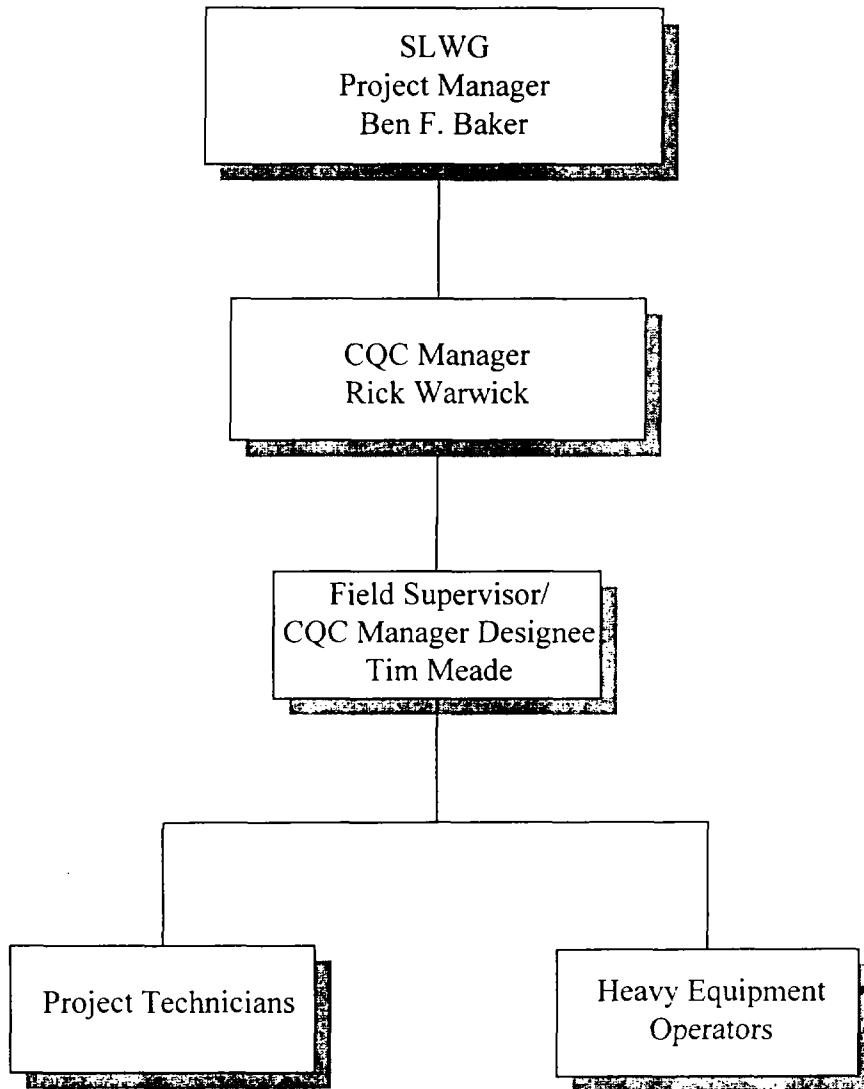
TABLE 4
BIO-POLYMER SLURRY
CONSTRUCTION DOCUMENTATION TESTS AND FREQUENCY
SKINNER LANDFILL

Test Type	Test Frequency
Bio-Polymer Slurry:	
o Density	4 tests/shift
o Viscosity	4 tests/shift
o pH	4 tests/shift
o Filtrate Loss	1 test/shift

APPENDIX I

CQC PROJECT ORGANIZATION

Appendix I
Quality Control Organizational Chart
Skinner Landfill Project



APPENDIX II

**CQC MANAGER AND
CQC MANAGER DESIGNEE RESUMES**

REGISTRATIONS/CERTIFICATIONS

Certified UST Installer, Ohio, #10-90-1175, 1990
Certified UST Installer, Indiana

SPECIALIZED TRAINING

OSHA 40-Hour Hazardous Waste Operations and Emergency Response Training, July 1987
OSHA 8-Hour Hazardous Waste Operations and Emergency Response Refresher Training, September 1999
Confined Space Entry Training, May 1996
Asbestos Supervisor Training, December 1995
OSHA 8-Hour Hazardous Waste Operations and Emergency Response Supervisor Training, 1991
Hazardous Waste Management Coursework, Bowling Green University, 1988-1990
Hazardous Waste Management Coursework, Texas A&M, 1985
Ohio Operating Engineer Apprenticeship Training, 1979-1984

PROFESSIONAL SUMMARY

Mr. Warwick has over 17 years of experience in all phases of environmental remediation, site construction and project management. He has supervised multidisciplinary crews and the operation of heavy equipment for landfill construction and capping, large earth moving projects, lagoon closure, underground storage tank (UST) removals, drum removal, soil excavation, soil and groundwater remediation, spill response, labpacking projects, and Phase I and II studies. Contaminants on these projects have included volatiles, semivolatiles, metals, creosote, PCBs, dioxins, gasoline, jet fuel, diesel fuel, and corrosives/caustics. Mr. Warwick also has extensive experience in the design and implementation of on-site treatment technologies. As a Project Manager for Earth Tech, he has been responsible for project management/supervision of large earth moving projects, waste processing systems including thermal desorption, mechanical dewatering systems, and *in-situ* soil vapor extraction systems. He is also responsible for waste brokering, cost estimating, contract management QA/QC, cost projections, and interaction with regulatory agencies.

PROJECT EXPERIENCE

- **Construction Project Manager, Skinner Landfill Group, Skinner Landfill, West Chester, Ohio, December 1999 to present.** As the Construction Project Manager, Mr. Warwick has been responsible for interfacing with the PRP group on pre-construction issues such as project schedule and approach. Attendance at local community meetings and meetings with the EPA have also been held in preparation for the anticipated 2000 project kickoff. [Earth Tech]
- **Project Manager, Sprayfield Construction, MacDill AFB, Tampa, FL, July 1999 to November 1999.** Mr. Warwick managed construction a sprayfield for the discharge of treated wastewater from the MacDill AFB WWTP. Cleared and grubbed 20 acres; imported and placed over 30,000 cubic yards of soil to construct a 6-foot berm with 3:1 slopes; placement of top soil and seeding to be completed. Oversaw the site supervisor, three equipment operators and two technicians during completion of this project. [Earth Tech]

- **Construction Manager, Landfill Cap Construction, Omaha Corps of Engineers, KI Sawyer AFB, Gwinn, Michigan, May 1999 to September 1999.** Managed construction activities for this \$2.7 million project involving the capping of three separate landfills totaling 24 acres the former Air Force Base. This complex project involved the use of up to 15 union equipment operators during simultaneous construction activities at three former landfill areas at the base. Specific activities included clearing and grubbing a total of 29 acres of highly vegetated areas, import and placement of over 165,000 cubic yards of clean fill material, placement of 24,000 cubic yards of topsoil, installation of drainage ditches, fence installation, and placement of 25,000 square yards of geomembrane. Earth Tech completed all three sites for \$560,000 less than the Engineers estimate.
- **Project Manager, Buckeye Furnace Reclamation, Ohio Department of Natural Resources, Jackson, Ohio, July 1998 to August 1999.** Mr. Warwick managed reclamation operations to restore the environment at this former coal mine. Responsible for interfacing with ONDR representative and directing site operations, which includes management of up to an eight person crew. Site activities included: relocation and placement of over 125,000 cubic yards of clean fill material for erosion control; placement of more than 200 linear feet of drainage piping; installation of 5,000 cubic yards of drainage channels to promote proper site drainage; and placement of 14,000 square feet of impervious liner. Upon completion of liner and soil placement the 60-acre area was revegetated. [Earth Tech]
- **Project Manager, Rose Township Superfund Site, Daimler Chrysler, Rose Twp., Michigan, April 1999 to May 1999.** Managed construction activities for the construction of a 2,100 cubic yard stockpile measuring 100 feet x 100 feet x 7 feet high. The pile was constructed to treat VOC-contaminated soil at this Region V Superfund site. Multiple horizontal SVE trenches were installed in the pile and consisted of 4-inch draitile, partial PVC screen with a peastone pack. The SVE trenches were connected to an existing SVE system on site. HDPE liner was placed beneath and over the stockpile to promote lateral air flows. In addition, managed the excavation of approximately 100 tons of PCB-contaminated soil for off-site disposal. [Earth Tech]
- **Earthwork Project Manager, Landfill Cover/SVE System Installation, National Presto Industries, Eau Claire, Wisconsin, May 1998 to November 1998.** Earthwork Project Manager, responsible for site work specifically related to site preparation/clearing and grubbing operations, relocation of 15,000 cubic yards of solvent-contaminated lagoon waste and placement of an 10-acre multi-layer synthetic site cap. [Earth Tech]
- **Night Shift Project Manager, Emergency Response to Train Derailment, CSX Transportation, Huntington, West Virginia, June 1998.** Mr. Warwick oversaw second-shift activities to remove contaminated soil that had been contaminated by approximately 11,000 gallons of formaldehyde due to a derailment. Responsible for directing soil excavation, loading and transportation operations, ensuring proper labeling and manifesting and interfacing with the regulatory agencies regarding environmental impacts and expected project schedule. [Earth Tech]
- **Project Manager, Landfill Construction, County of Tazewell, Tazewell, Virginia, February 1998 to June 1998.** Mr. Warwick directed construction activities for an 8-acre Phase II Sanitary Landfill expansion. Directed two site supervisors, a project engineer, five equipment operators and three technicians, during this massive earth-moving project. The project included the excavation of 171,000-cubic yards of soil and rock, earthwork, installation of clay and geosynthetic liners, and construction of a leachate collection system. Approximately 146,000 square feet of 60-mil HDPE smooth membrane was placed on the base of the landfill. Second, approximately 87,000 square feet of 60-mil HDPE texture membrane was be placed. Approximately one-half of the project was

performed using two shifts to expedite completion of the project, at the request of the client. [Earth Tech]

- **Project Manager, Emergency Response to Tanker Spill, Environmental Maysville, Kentucky, December 1997.** Managed emergency response efforts for the site clean-up resulting from a tanker roll-over in which 1,500 gallons of 15-W-40 motor oil was spilled on a dairy farm. Directed efforts to excavate over 300 tons of impacted soil and prevent the migration of oil to an adjacent pond. Oversaw a crew of five during execution of the project, during which Earth Tech responded to the within 90 minutes of receiving the request for services from the client. Interfaced with the Fire Marshal, State EPA, Kentucky DEQ, local law enforcement and the insurance company. [Earth Tech]
- **Project Manager, Concrete Lined Drainage Ditch Installation, Reilly Chemical, Lima, Ohio, December 1997.** Managed installation of a 350-foot long, 23-foot wide lined concrete drainage ditch to isolate limited areas of contaminated soil from impacting the surface water flowing through a portion of a county ditch. Removed 80 cubic yards of soil to obtain necessary elevation. Installed a temporary dam from which water was diverted around the construction area. Oversaw placement of 5,700 square feet of 20-mil liner along the entire length of the ditch. Managed the placement of 4-inch thick concrete barrier on the ditch bottom. Restored water flow to the ditch following curing of the concrete. Managed a crew of 8 during performance of the work. [Earth Tech]
- **Project Manager, Site Remediation and Equipment Removal, CSX Transportation, Lima, Ohio, December 1997.** Directed site remediation and equipment removal activities at this former rail facility. Activities included site grading (approximately 3,000 cubic yards), removal of 1,000 gallons of oil from various vessels, and off-site disposal of the liquid waste. Directed a three person crew for the removal of various abandoned equipment and material items. [Earth Tech]
- **Project Manager, Exploratory Soil Removal and Landfill Cap Construction, General Electric, Coshocton, Ohio, May 1997 to July 1997.** Mr. Warwick served as Project Manager for the construction of a five acre RCRA landfill at this plastic- and copper-clad fiberglass laminate manufacturing. He was responsible for scheduling, cost projections, coordination of sub-contracts, and invoicing for this \$1 million project. The project included excavation and relocation of 23,000 cubic yards of metals contaminated soils, haul road construction, and excavation and characterization of eighty-five drums containing both liquid and solid materials. [Earth Tech]
- **Master Foreman, Ohio River Flood, Various Locations - Ohio River, USEPA Region IV, March to April 1997.** Responsible for river barge operations for the recovery of drums, propane tanks, cylinders, oil tanks and freon cylinders from the shores, locks and dams on the Kentucky side of the Ohio River. The Earth Tech barge team consisted of 1 tug boat, and 3 barges. On board was a crane, vacuum truck, 5,000-gallon tanker and a hopper barge to receive recovered drums and tanks. Supervised eight technicians and one equipment operator for the recovery of the various tanks and cylinders over a 300 mile length of the river. Coordinated with U.S. Coast Guard for access, permits and scheduling. Recovery operations lasted about two months, bulking operations approximately two weeks. Recovered items included: 2,170 drums, 470 tanks, 1015 cylinders and 665 miscellaneous containers. [Earth Tech]
- **Project Manager, Soil Excavation, Backfill and Loadout; Reilly Chemical, Indianapolis, Indiana, October 1996 to January 1998.** Managed the excavation of over 13,000 tons of pyridine and PAH contaminated soil at four distinct areas of the site. Coordinated site activities at multiple areas of this active chemical manufacturing site, requiring daily coordination with the client, material

suppliers and Earth Tech crew. Project involved soil excavation from the four areas of the site and subsequent stockpiling of the soil. Due to the proximity of the site to residential communities, dust control and fugitive emissions were monitored and controlled, resulting in enhanced community relations. Managed the backfill of all excavated areas and placement of a concrete containment cap over two of the areas. Stockpiled soil was loaded for transport to a client designated disposal facility. [Earth Tech]

- **Project Manager, Site Assessment and Development of Remedial Alternatives, Memcor-Truohm, Huntington, Indiana, December 1997 to present.** Provided client guidance for the site investigation at this electromaterial manufacturer. Chlorinated solvents had been detected soil and groundwater samples collected at the site. Oversaw a geologist during site investigation activities to determine the horizontal extent of contamination. Interfaced with client to determine the most effective and least costly remediation alternatives. [Earth Tech]
- **Project Manager, Site Preparation and Landfill Cap Construction, Reilly Chemical, Indianapolis, Indiana, September 1995 to May 1997.** Managed a crew of 10 equipment operators in site preparation and construction of a 6-acre landfill cap. After the designated areas of the landfill were cleared, areas of free-flowing coal tar were excavated, stabilized, backfilled and compacted. An estimated 17,000 cubic yards of stabilized material was backfilled and compacted before capping. Additionally, 10 acres of construction demolition debris and 1,000 linear feet of concrete foundations were removed and/or crushed to specification. This material was stockpiled, sampled, and reloaded for transportation to the landfill area. A total of 22,000 tons of soil and 6,000 tons of concrete were processed for use as backfill for the landfill cap. The demolition debris, followed by 14,000 tons of stone, was placed in uniform lifts, graded to proposed elevations, and compacted to specifications. Drainage ditches were installed to route the runoff to a retention basin. Finally, 11,000 tons of topsoil were used to provide vegetative cover. Additional work items included construction of three infiltration galleries, construction of 2,000-linear foot road, and demolition of four 5,000-gallon storage units. Responsible for all client interface, invoicing, cost tracking and quality control. Instrumental in completing the landfill construction portion of this project 25 percent ahead of schedule and 30 percent under budget. [Earth Tech]
- **Project Manager, Petroleum-Contaminated Ballast Remediation, CSX, Savoy, Kentucky, July to August 1996.** Approximately 160 linear feet of railroad track (i.e., the ballast below the tracks themselves and an adjacent drainage swale) had apparently been contaminated with lube oil/grease from leaking locomotives. To protect the tracks/ties and to allow for collection by vacuum truck, an extendahoe was used to loosen contaminated material to the bottom of the railroad ties. The remaining contaminated ballast was then excavated with a backhoe and stockpiled on 5-mil poly pending disposal characterization. Prior to excavation in the ditch area, all liquid material was removed using a diaphragm pump and containerized in 55-gallon drums for sampling and disposal. Supervised an operator and a laborer. [Earth Tech]
- **Project Manager, UST Removals, James River Corporation, Kalamazoo, Michigan, March to July 1996.** Directed the excavation and removal of four 80,000-gallon USTs containing diesel fuel. A surfactant was applied to the walls of the excavation to enhance biodegradation of any remaining diesel fuel. The excavation was then backfilled and regraded. This project also involved pavement restoration. The tanks were cleaned and recycled. Supervised a crew of three equipment operators and two laborers using dozers, excavators, and loaders. [Earth Tech]
- **Project Manager, UST Removal, Precision Industrial Automation, Cincinnati, Ohio, November 1995.** Directed one equipment operator and three laborers in the removal of a 10,000-gallon #2 fuel

oil UST at this site. The tank was located within 20 feet of a building and covered with 6 inches of asphalt. No soil contamination was identified during the course of tank removal. The excavation was backfilled and the asphalt was restored. [Earth Tech]

- **Project Manager, On-site Soil Treatment, Citizens Gas, Indianapolis, Indiana, October 1995 to July 1996.** This project involved the remediation of approximately 60 cubic yards of TPH- and tetrachloroethene-contaminated soil associated with two tanks previously removed from the site. Supervising an operator, transferred the soil to three 20-cubic-yard roll-off boxes. Prior to the placement of the soil, the roll-offs had been lined in poly and equipped with PVC piping. PVC wells were placed along the middle axis of each box once the soils were in place. Following treatment via soil vapor extraction, the soil was sent to an off-site bioremediation facility. [Earth Tech]
- **Project Manager, Shock Sensitive Removal, Systech, Toledo, Ohio, December 1994.** Directed the removal of approximately 2,000 cubic yards of shock-sensitive-contaminated soil from an abandoned burial pit. The material was removed using excavators, loaded into trucks, and transported off site for disposal. The pit was backfilled with clean fill and compacted to existing grade. Supervised an equipment operator and two laborers. [Earth Tech]
- **Project Manager, Belle Meadows Phase I Assessment, Coast Federal Bank, Trotwood, Ohio, October 1994.** Conducted a Phase I assessment on a 10-building apartment complex containing 144 rental units. This assessment involved a site visit for the purpose of observing any potential environmental concerns at the site or on adjacent properties and a review of the site's history and past uses through site records, State regulatory agency files on the site and/or adjacent properties, and aerial photographs. No contamination or areas of concern were noted for the subject property, although a gasoline service station across the street was identified as a source of groundwater contamination (downgradient). [Earth Tech]
- **Project Manager, Soil Vapor Extraction (SVE) System Design, General Motors, Dayton, Ohio, April to July 1994.** Designed a pump station capable of treating the 17 areas of petroleum and chlorinated solvent contamination at this facility. A 400-scfm pump station was selected to support the different soil types and treatment cell sizes. [Earth Tech]
- **Project Manager, Bioremediation of Petroleum-Contaminated Soil, Roy F. Weston, Miamisburg, Ohio, April to August 1994.** Managed this high-profile project involving the construction of a bioremediation facility at the U.S. Department of Energy Mound Facility. Responsible for estimating, scheduling, cost projection, cost control, QA/QC, coordination of subcontracts, and interaction with governmental contracting agencies. Supervised 10 to 15 professionals, building trades, operators, and laborers. [ETG Environmental]
- **Project Manager, Site Investigation/Remediation, Confidential Client, Dayton, Ohio, September 1993 to January 1994.** This project involved the investigation and excavation of a thin, confined layer of contact cement spread over a half acre at this manufacturing facility. Designed and implemented the investigation of two areas at the site. In one area, a backhoe was used in selected places to scrape back layers of clean soil until discolored soil, if any, was visible. Soil samples were collected and analyzed to verify the extent of VOC contamination. In a second area, a soil gas survey using a 10-foot grid was conducted to assess contaminant distribution. Directed a five-person crew composed of equipment operators and laborers in the removal of the impacted layer. The overburden was removed, segregated for sampling, and used as backfill after it was determined to be "clean." A total of 190 tons of contact cement was excavated, placed in roll-off boxes, and transported off site for thermal destruction. [ETG Environmental]

- **Project Manager, Soil Remediation, Dailey Oil, New Castle, Indiana, June 1993 to April 1994.** Designed and managed the \$400,000 construction of an *ex-situ* stockpile, soil vapor extraction system for 3,000 cubic yards of soil containing 5,800 gallons of BTEX (gasoline) contaminated waste. The contaminant level in the soil was sufficiently reduced to allow for disposal as nonhazardous material. [ETG Environmental]
- **Project Manager, UST Removal and Soil Remediation, Confidential Client, Dayton, Ohio, November 1992 to August 1993.** Designed and managed the removal of three USTs and the installation of an *in situ* soil vapor extraction system to treat soils containing 7 percent toluene. Approximately 5,000 cubic yards were treated to below detection limits. [ETG Environmental]
- **Project Supervisor, Thermal Desorption System Operation, Sun Oil Refinery, Toledo, Ohio, September 1991 to March 1992.** Directed a six-person crew in the 24-hour operation of a thermal desorption system treating refinery waste to meet land disposal regulations. The system involved on-line processing of wastewater treatment sludge using a medium temperature $\approx 1,100^\circ$ indirect heat unit to achieve an 80 percent reduction of material requiring disposal. [ETG Environmental]
- **Project Supervisor, Drum Removal and Demolition, Pennsylvania Forest Service, College Station, Pennsylvania, June to August 1991.** Directed a five-person crew in the demolition of a 5,000-square-foot building and disposal of hazardous tanks and soil. Also responsible for exploratory drum excavations. Approximately 50 drums were recovered. Contaminants at this site included creosote and spirits associated with wood treatment. [ETG Environmental]
- **Project Supervisor, Sludge Removal, BP Oil, Toledo, Ohio, March to September 1990.** Directed the closure of an oily waste ditch approximately 3,300 feet long through an operating oil refinery. The \$4.5 million project entailed excavation of oily sludges within the ditch followed by stabilization with pozzolime to allow for acceptance at a RCRA landfill. Supervised 25 to 35 personnel in Level B and C protection using excavators, loaders, dozers, graders, quarry trucks, and backhoes. A total of 30,000 cubic yards of waste was excavated. [ETG Environmental]
- **Project Supervisor, Excavation and Sludge Dewatering, Chevron Refinery, Baltimore, Maryland, May to October 1989.** Directed this \$300,000 excavation and dewatering project, which involved 500 tons of API separator sludge. Supervised a crew of 10 operators and laborers using excavators and vacuum trucks. Dewatering was accomplished utilizing a plate and frame filter press. The processed material was disposed of in a RCRA hazardous waste landfill. [ETG Environmental]
- **Project Supervisor, Contaminated Soil Removal, Chrysler, Kokomo, Indiana, March 1987 to January 1988.** Supervised the excavation, disposal, and backfilling of a 25-acre, 451,000-cubic-yard area of soil contaminated with transmission and cutting oils. Supervised 10 to 12 operators and laborers removing and disposing of 3,000 cubic yards per day. This \$2 million project required extensive interaction with regulatory agencies and the client. [ETG Environmental]
- **Project Supervisor, Lagoon Closure, BP Oil, Lima, Ohio, April to September 1986.** Directed the \$3 million closure of three lagoons, which involved the dredging of 3,000,000 gallons of refinery waste and DAF sludge utilizing long-shaft, barge-mounted centrifugal pumps followed by dewatering of the sludge in a plate and frame filter press. Work was conducted around the clock with 10 to 12 personnel per shift. The project was completed on time and within budget. [ETG Environmental]

- **Project Supervisor, Exploratory Waste Excavation, Ford Motor Company, Sandusky, Ohio, March to May 1986.** Directed a five-person crew in the exploration for arsenic waste over a 30-acre site. Small areas of contamination were identified. "Surgical" excavation was conducted to remove approximately 750 cubic yards of waste, which was then disposed of in a RCRA hazardous waste landfill. [ETG Environmental]

EMPLOYMENT HISTORY

Project Director, Earth Tech, Inc., August 1994-Present. Responsible for project management/supervision of landfill construction/capping projects, large soil excavation and waste processing systems including thermal desorption, concrete crushing and mechanical dewatering systems.. Also responsible for cost estimating, contract management QA/QC, cost projections, and interaction with clients and regulatory agencies.

Project Supervisor, ETG Environmental, Inc., May 1984-July 1994. Managed crews of up to 40 personnel for multimillion-dollar construction projects and developed a strong working relationship with clients that included Fortune 500 companies and numerous state and federal agencies. Responsible for all phases of work from proposal development/design to successful site closure.

Operating Engineer, Local 18, 1979-1984. Involved in stream reconstruction, building trade, and large earth moving projects (million+ cubic yards).

EDUCATION

Computer and General Coursework, Lee College, Baytown, Texas, 1986-1991

SPECIALIZED TRAINING

OSHA 40-Hour Hazardous Waste Operations and Emergency Response Training, September 1993

OSHA 8-Hour Hazardous Waste Operations and Emergency Response Refresher Training, April 1999

OSHA 8-Hour Hazardous Waste Supervisor Training, December 1993

DOT General Awareness Training, May 1999

First Aid and CPR, March 1996

ATV Safety Training, May 1994

Helicopter Rigging and Safety Training, May 1994

PROFESSIONAL SUMMARY

Mr. Meade has over seven years of on-site experience in hazardous waste remediation and six additional years of experience supervising general construction projects. As a Project Manager, he is familiar with all facets of construction and hazardous waste project management, with an emphasis on heavy equipment operations, soil stabilization, water treatment techniques and equipment, and plant operations and maintenance. Mr. Meade is also responsible for bid and proposal preparation, work plan, health and safety plan and quality control plan development and implementation. Upholding the highest standards in safety and quality, he has successfully managed a variety of environmental remediation, emergency response, and construction projects ranging in value from \$50,000 to \$10 million. He has extensive experience in the management of subcontractors as well as subcontracting protocol. He is also proficient in the operation of heavy equipment, including excavators, backhoes, bull dozers, and front-end loaders. In addition to managing daily work activities, he is responsible for interfacing with clients and regulatory officials. He has a wide range of knowledge in remediation services for both government facilities and private sector sites. Mr. Meade is an approved Response Manager in USEPA Regions II, III and V, and has served as a Project Manager and Foreman on USEPA sites in Regions IV and VI. His on-site experience encompasses projects at a variety of locations, including institutions, factories, warehouses, chemical facilities, waste sites, and Department of Defense facilities.

Additionally Mr. Meade has six years of supervisory experience as a Superintendent for general contractors. In this capacity he was responsible for supervising up to 25 Iron Workers, Operators, Pipefitters Concrete Finishers, Welders, Boilermakers, Millwrights, Electricians, Painters, Plant Operators Surveyors and Laborers on both union and non-union construction projects. He has also directly supervised over 25 "critical lifts".

PROJECT EXPERIENCE

- **Project Supervisor, Soil Excavation and Stabilization, Southwire, Carrollton, Georgia, November 1999 to January 2000.** Directed soil testing, excavation, segregation, loading and pugmill stabilization at this wire rope manufacturer in Carrollton, Georgia. As part of site modernization and construction activities, over 40,000 tons of lead-contaminated soil were excavated for treatment and/or off-site disposal. Mr. Meade directed site-wide remedial construction activities

including oversight of 6 equipment operators, four technicians, one T&D coordinator, one on-site chemist and a pugmill subcontractor. Soils that "failed" TCLP criteria were treated in a pugmill via the addition of TSP for stabilization. Lead-contaminated soil that "passed" TCLP was directly loaded for off-site disposal. Mr. Meade was responsible for maintaining an excavation production rate of 1,000 to 2,000 tons per day, and a stabilization production rate of 750 tons per day. Remediation performed within this active facility was completed with no interruption to plant operations despite the presence of multiple underground utilities, the majority of which were not identified on maps or drawings. [Earth Tech]

- **Project Supervisor, Landfill Cap Construction, KI Sawyer Air Force Base, Gwinn, Michigan, May 1999 to September 1999.** Managed site activities for this \$2.7 million project involving the capping of three separate landfills totaling 24 acres the former Air Force Base in the Upper Peninsula of Michigan. This complex project involved the use of up to 15 union equipment operators during simultaneous construction activities at three former landfill areas at the base. Specific activities included clearing and grubbing a total of 29 acres of highly vegetated areas; import and placement of over 100,000 cubic yards of refuse from an adjacent area; import and placement of 65,000 cubic yards of clean fill material; placement of 24,000 cubic yards of topsoil; installation of drainage ditches; fence installation; and placement of 25,000 square yards of geomembrane. Also restored a five-acre wetlands area to original the condition. Earth Tech completed all three sites, capping a total of 24-acres of former landfill area, for \$560,000 less than the Engineer's estimate. Mr. Meade was responsible for coordinating with the Corp of Engineers and Air Force Representatives; daily cost tracking and procurement of all site materials. [Earth Tech]
- **Junior Response Manager, USEPA Region V, Tar Lake Superfund Site, Mancelona, Michigan, November 1998 to May 1999.** Mr. Meade directed transportation and disposal efforts for the off-site disposal of wood-tar at this Region V Superfund Site. He was directly responsible for 60-foot truck scale set-up and operation, manifest preparation and documentation, on site sampling and analysis, coordinating and scheduling shipments including securing the proper number of trucks, coordinating shipments and approvals with the disposal facilities and directing on-site waste loading operations. Over 46,000 tons of material were disposed of during this removal action. As a result of extensive coordination efforts, the volume of waste that was transported off site on a daily basis more than tripled, with up to 60 trucks (1,400 tons) per day loaded, manifested and transported to four separate facilities by eight separate transporters. Due to the residential location of the project and community concerns of the odor emitted during excavation activities, the project was undertaken during the winter months in the very adverse weather conditions of northern Michigan. [Earth Tech]
- **On-Site Project Manager, Ohio Department of Natural Resources, Buckeye Furnace Reclamation, Jackson, Ohio, July 1998 to December 1998.** Mr. Meade managed site activities for the reclamation of this former coal mine. Directed site operations, which included oversight of five equipment operators, 12 dump truck drivers and two laborers. The project consisted of 8 separate site locations up to 4 miles apart ranging from 1 to 40 acres. Site activities included: clearing and grubbing; construction of site access roads; installation of 5,500 liner feet of silt fence; excavation, transportation and placement of over 250,000 cubic yards of mine refuse, with over 75% being placed over "fine beds"; excavation, transportation, placement and compaction of over 140,000 cubic yards of borrow material to cap the refuse; placement of 200 linear feet of drainage piping; placement of 5,000 tons of rip rap; construction of 4,500 linear feet of drainage channels; application and incorporation of 1,500 tons of lime; construction of a wetlands; construction of two (300 x 100 feet and 100 x 50 feet) Successive Alkaline Producing Systems (SAPS); construction of a 300 linear foot

long, 25 foot deep underdrain; and the application of 12,000 tons of Bypro paper sludge. Other responsibilities included procurement of all materials, equipment and subcontractors; cost tracking; invoicing; subcontract negotiations; site safety; and QA/QC. Mr. Meade worked very closely with a local developer for access to land for clean borrow and with the DNR project officer during project execution. [Earth Tech]

- **Foreman, Emergency Response, CSX Transportation, Huntington, West Virginia, June 1998.** Mr. Meade served as Foreman for the night crew during remediation activities associated with the spill of approximately 30,000 gallons of formaldehyde. The spill occurred as a result of a train derailment in which approximately 30 cars derailed in a residential area. Mr. Meade was responsible for operating excavation equipment to remove formaldehyde-contaminated soil. Over 200 roll-off boxes were used to containerize contaminated soil during this one week round-the-clock response effort. [Earth Tech]
- **On-Site Project Manager, Tazewell County; Landfill Construction, Tazewell, Virginia, February 1998 to June 1998.** Mr. Meade was the on-site project manager for this project to complete a 5-acre Phase II Sanitary Landfill expansion. On-site personnel included 12 operators, 4 laborers and 1 field engineer. The project included the excavation and transportation of 171,000-cubic yards of soil and rock and the excavation, transportation, placement and compaction of 16,000 cubic yards of clay. Oversaw subcontractor placement of 220,000 square feet of geosynthetic liners. Managed the construction of a leachate collection system. Placed 15,000 tons of drainage stone and 5,000 cubic yards of cushion soil over the liner. A record was set during the month of April for the most rain ever recorded for that month. Due to the extensive drainage control measures implemented by Mr. Meade, only 5 days of work were lost during that time. Site activities were performed 24-hours a day 7 days a week using two shifts during a portion of the work. Extensive quality control measures were required by the state, including; 20 Shelby tubes, 7 bat-well tests, 5 nuclear compaction test per acre per lift and 1 sand cone per acre per lift. Throughout the duration of the project no area had to be re-worked for QC compliance. Mr. Meade was responsible for deploying all the necessary personnel and equipment to complete the work and interface with the landfill manager. Mr. Meade's ability to utilize the personnel and equipment to their fullest extent demonstrated to our client that we were running an efficient operation. In commendation letters received from our client regarding this project, our crew was commended for "considerable knowledge and professionalism in complying with our needs and timetable, as well as making a diligent effort to keep costs to a minimum." [Earth Tech]
- **Quality Control/Quality Assurance Manager, U.S Army Corps of Engineers Sacramento District, Emergency Levee Repair, Sutter, Fresno and Madera County California, November 1997.** This \$3.1 million project consisted of excavation, mass grading, backfilling and rip rap placement for emergency levee repairs along the San Joaquin and Fresno rivers. Responsible for the daily QA/QC requirements and supporting documentation required by the USACE. Requirements included visual inspection, on-site and laboratory soil testing, density testing of soil using nuclear and sand cone methods, visual inspection of lift placements and compaction techniques and visual inspection and laboratory testing of all aggregate for consistency and specification compliance. Because of the severe weather threats associated with El Nino, the project was considered an emergency action and was required to be completed within 45 days. [Earth Tech]
- **Project Manager, City of Franklin, Franklin, Ohio, July 1997 to December 1997.** Supervised the civil work associated with the construction of 5 million gallon per day water treatment plant. Directed installation of approximately 6,000 linear feet of up to 36-inch underground piping for feed

and discharge lines. Supervised the construction of two water retention ponds. Excavated soil was used as on-site fill. Oversaw construction of 2,700 linear foot underground force main sewer line. Directed excavation and grading for clear well and foundations. Procured, placed and compacted 100,000 cubic yards of soil for access road embankment. Placed, compacted and graded to $\pm \frac{1}{2}$ " 10,000 tons of rock for the road base. Raised or relocated 20 fire hydrants, manholes and valve boxes. Managed subcontractor placement of 1,100 tons of asphalt. Supervised the installation of 1,600 feet of fence. Extensive coordination was required with the mechanical and electrical contractors to ensure that the \$4 million plant was operational in four months. [Earth Tech]

- **Response Manager, Raeco Chemical, USEPA Region II, Rochester, New York, February to March 1997.** Over 500 drums were abandoned in truck trailers at this former chemical manufacturing site. Coordinated drum unloading using forklifts to access drums. Level B PPE was used during all site operations for the hazcatting and overpacking of the drums. All contents of the drums were profiled and transported off site for disposal. Managed one foreman, one equipment operator, one chemist, one field cost accountant and four technicians during this phase of the project in addition to serving as Site Safety Officer. [Earth Tech]
- **Project Supervisor, Fullco Lumber, USEPA Region IV, Haleyville Alabama, January 1997.** On-site supervisor responsible for overseeing the screening and relocation of 8,000 cubic yards of PAH-contaminated soil at a former wood treatment facility. Soil was solidified with saw dust, shredded, screened down to 2" minus, and stockpiled for future placement into an on-site bio-treatment cell. Debris was categorized and stockpiled for treatment or off-site disposal. Also sampled and performed daily maintenance to the 3-acre bio-treatment cell which included watering, discing, and nutrient application and incorporation. [Earth Tech]
- **Project Manager, Columbia Plating, USEPA III, Columbia, Pennsylvania, November to December 1996.** Supervised three operators and four technicians during demolition and excavation activities at this former plating facility. Contaminants included chromium, barium, and cadmium. An excavator was used to demolish the existing building, followed by off-site disposal of approximately 200 tons of non-hazardous construction debris. Over 4,000 tons of contaminated soil was excavated and transported for off-site stabilization and disposal. Restored the site by backfilling the excavated area with clean fill, and by placing geotextile and rip rap at an environmentally sensitive area beside an on-site pond. Additional site restoration activities included the erection of a fence around the site, replacement of an asphalt road, placement of top soil, and revegetation. [Earth Tech]
- **Project Supervisor, Hart Creosote Site, USEPA Region VI, Jasper, Texas, August to October 1995.** Responsible for all daily site operations for this \$750,000 project, including: excavation of 40,000 cubic yards of creosote-contaminated soil, on-site treatment of 1.1 million gallons of contaminated water using a sand and carbon filtration system, construction and closure of a 60,000-cubic-yard, clay-lined landfill, solidification of 20,000 cubic yards of contaminated sludge in four ponds, and reseedling and relandscaping to restore a 6.5-acre site. Also procured all equipment and supplies, and served as site Health and Safety Officer. [Smith]
- **Site Supervisor, Butte La Rose Site, United States Coast Guard, Butte La Rose, Louisiana, October to November 1995.** Supervised a crew of 10 recovery technicians to contain a release of approximately 10,000 gallons of crude oil at this \$200,000 spill cleanup conducted under a Basic Ordering Agreement (BOA) with the USCG. Oil was recovered from six different locations at an

abandoned oil field in the Atchafalaya River basin. Sites were only accessible by boat, crews and equipment were transported up to 30 miles by boats daily. Free product was recovered with skimmers and pumps and contained in tanks. Sites consisted of pump stations, ponds and any other areas where free-standing oil was present. [Smith]

- **Project Supervisor, Safe Tire Project Site, USEPA Region VI, Midlothian, Texas, December 1995.** Managed a crew of five technicians and three equipment operators as one of three team subcontractors on this \$100,000 emergency response action. Provided equipment and operators for "hot zone" activities, as well as responders and labor support for all support zone activities to extinguish approximately 20 acres of shredded tires that caught fire at a tire recycling facility. The effort was a 24-hour-a-day, 7-day-a-week operation that lasted 18 days and was conducted in freezing weather. [Smith]
- **Project Supervisor, Jasper Creosote, USEPA Region VI, Jasper, Texas, April to June 1996.** Managed a crew of six technicians and three equipment operators to conduct a \$1.2 million cleanup of an abandoned creosote plant. Site activities included: taking more than 100 test samples from the soil, liquid in tanks, unknowns in warehouses, and neighboring ponds; disposal of 52,000 gallons of waste product left in tanks at an off-site incinerator facility; salvage of 1,500 tons of scrap metal; and set up and operation of a pugmill to encapsulate 67,000 tons of creosote-contaminated soil. Asbestos was removed from tanks, pipes and pressure treating vessels. All metal, including piping and 12 tanks, was decontaminated using pressure washers and sold for scrap. The area was cleared of all remaining treated and untreated wood, and restored with clay fill and topsoil. Then the entire site was reseeded and relandscaped. [Smith]
- **Project Supervisor, Bioremediation Facility Construction, Crane Naval Weapons Station, Morrison Knudsen, Crane, Indiana, September to November 1996.** Supervised the construction of a bioremediation facility consisting of three metal buildings 120 feet x 300 feet long. The buildings were being constructed to house TNT- and explosives-contaminated soil for biotreatment. Buildings were constructed with concrete slab walls and 6-foot walls inside the building for front-end-loader access during biotreatment activities. Directed the construction of two 100-foot x 100-foot ponds that were lined to contain contaminated water run-off. The 6-acre site was graded, rocked and asphalted to provide for run-off into ponds. Supervised construction of office support area, personnel decontamination areas, and truck decon areas. The truck decon area was constructed using masonry techniques, and required the installation of a canopy and high pressure sprayers. Provided extensive coordination with all subcontractors, including electricians, masons, plumbers, iron workers, operators, laborers, concrete finishers and surveyors for construction activities. Up to 30 subcontract personnel were on site routinely. Responsible for all scheduling and maintaining/documenting costs. Conducted safety meetings to identify potential areas of concern. [Smith]
- **Project Manager, PCB Cleanup, Trunkline Gas Company, Kountz, Texas, September 1996.** Managed a crew of two technicians and two equipment operators to conduct comprehensive PCB cleanup for a gas company. Site activities included: excavation and off-site disposal of 3000 tons of PCB-contaminated soil; on-site treatment of groundwater contaminated with VOCs, semi-volatile organics, PAHs and heavy metals; and backfilling and restoring the site. Constructed 700 feet of rock road on geotech fabric to access the site. Solidified soil with flyash in roll-offs, and coordinated with subcontractor to ensure safe and timely off-site disposal of contaminated soil. [Smith]

- **Project Manager, Environmental Restoration, GATX, Galens Park, Texas, June to September 1996.** Managed a crew of three technicians and four equipment operators to close a 3-acre hazardous waste pond. Site activities included: solidifying 2-6 feet of sludge, encapsulating debris, constructing new drainage structures, installing a clay liner, and improving the surrounding roads, ditches, and dike walls. Moved 3,000 cubic yards of soil to reshape dike walls and construct an access ramp into the pond. Three comprehensive strength cylinders were taken of each day's mix. Successfully met compressive strength requirements of 4,400 psf in 7 days. Despite limited crew resources, project was completed 21 days ahead of schedule. [Smith]
- **Project Manager, Emergency Responses throughout Texas, Various Clients.** Supervised rapid responders to address emergency incidents such as overturned tank trucks, shifted loads of hazardous materials, mystery drums, and petroleum spills on land and water. Projects were conducted for clients such as Texas Department of Transportation, TNRCC, USCG, and privately owned businesses. The majority of these responses occurred outside of normal work hours and posed serious threats to human health and the environment until completed. [Smith]
- **Operations Supervisor, Low Temperature Thermal Desorption Project, U.S. Army Corps of Engineers, Romulus, New York, September 1994 to March 1995.** Responsible for daily operations of this \$6.2 million project, including: excavation, thermal treatment, transportation, and backfill of 34,000 tons of contaminated soil; classification and decontamination of associated debris; and operation of a 50-gallon-per-minute water treatment plant for all groundwater and decontamination water. Contaminants of concern at this site included VOCs, semi-volatile organics, and PAHs. [IT Corporation]
- **General Foreman, Environmental Restoration Project, U.S. Army Corps of Engineers, Nome, Alaska, April to September 1994.** Responsible for complete oversight of all craft personnel and daily field activities for this \$17.9 million project at 10 sites in the Nome area. Activities consisted of: constructing and operating a 20,000-cubic-yard landfill and two decontamination facilities; treating contaminated soil *in situ* using bioremediation techniques; and recovering, sampling, overpacking, classifying, decontaminating, transporting, and disposing of 30,000 drums. The drums contained heating fuel, and were excavated from beaches, tundra, pond banks, and riverbeds. Some sites were only accessible by helicopter, all equipment and personal was flown in and activities were performed manually. All drums were transported to central location where they were deheaded, cleaned with a pressure washer, crushed, and disposed of in the landfill. Contents of the drums were bulked, transported to a barge in Nome, transferred onto the barge and recycled in the lower 48. Managed four crews at separate sites simultaneously. Due to contractual obligations, the entire labor force had to be hired and trained locally. Interviewed, hired, trained and managed 4 foreman, 12 operators and 40 environmental technicians. [IT Corporation]
- **Operations and Maintenance Supervisor, Sikes Superfund Site, USEPA Region VI and the Texas Water Commission, Crosby, Texas, October 1993 to April 1994.** Responsible for all activities associated with thermal treatment unit feed preparation to treat and handle contaminated soils and associated debris. Managed site operations, including: receiving, handling, and maintaining contaminated soils and stockpiles; using dump trucks and front-end loaders to transport, screen and stockpile debris; classifying contaminated soils for the purpose of blending and optimizing for feed; shredding drums and over-sized debris using a high-torque, slow-speed shredder; decontaminating excavation equipment and materials to established clean-up criteria; and performing all necessary maintenance to support the equipment. [IT Corporation]

EMPLOYMENT HISTORY

Project Manager/Response Manager, Earth Tech, Wilder, Kentucky, 1996-Present. Responsible for managing a variety of environmental restoration and construction projects including Superfund site work; demolition and decontamination projects, response to train derailments; drum characterization and disposal; large earth moving projects and landfill construction work.

Project Manager, Smith Environmental Technologies, Deer Park, TX, 1995-1996. Responsible for managing all types of EPA and private sector remediation and construction projects, including drum removal, PCB cleanup, pugmill operations, landfill construction and closure, site development, hazardous waste site clean-up and closer, and large maritime oil-spill responses. Directed multiple crew members, provided oversight on scheduling and project budgets, and interfaced with regulatory agencies.

Operations Supervisor and General Foreman, International Technology Corporation, Monroeville, PA, 1993-1995. Managed site operations at multiple hazardous waste sites. Duties included supervising crews in the operations and maintenance of mobile thermal treatment units. Also responsible for directing crews in landfill construction, operation and closure, drum removal and bioremediation system installation projects.

General Foreman, A.L. Helmcamp, Houston, TX, 1992-1993. Responsible for overseeing iron workers, operators, pipefitters, concrete finishers, welders, boilermakers, millwrights, electricians, painters, plant operators, surveyors and laborers during general construction projects. Supervised crews during shut-down and turnaround events performed at manufacturing, chemical, and petro-chemical refinery facilities. The majority of the work involved upgrade, repair and installation of process equipment and units. Most projects were 24 hours a day 7 days a week until completed.

Site Superintendent, TEMCOR, Carson, CA, 1989-1992. Responsible for supervising up to 15 iron workers, pipefitters, welders, and painters in the construction of Geodesic Domes. Projects ranged from \$30,000 to 1 million dollars, and lasted from 1 week to 3 months. Completed over 50 projects in 38 states for federal, state, and local government contractors and privately owned contractors. Also directly supervised over 25 "critical lifts" including the use of 4- to 165-ton cranes to set a 200-foot diameter dome on top of a 50-foot high concrete tank. Traveled with a foreman and lead iron worker and hired craft personnel through local union halls. Major projects included; University of Connecticut 320-foot diameter basketball stadium roof; a 160-foot diameter hemisphere with 3 layers of 1/4" sheeting and insulation for acoustical testing of jet engines for NASA in Cleveland, Ohio; over 32,000 square feet of trusses and removable flat covers for a waste water treatment plant in San Antonio, Texas; and a 80-foot diameter glass hemisphere for a rain forest exhibit at the Cleveland Metropolitan Zoo in Cleveland, Ohio.

Foreman, Conservatek, Conroe, TX, 1987-1989. Field foreman for crews during fabrication and construction of Geodesic Domes. Supervised crews for the erection of framing and sheeting for dome construction.

APPENDIX III

DAILY JOB REPORT FORM

Daily Job Report

Date _____ Contact _____
 Client _____ Title _____
 Site Address _____ Weather _____
 City _____ State _____ Zip _____

PERSONNEL

Name	Title	Time				Total	
		Started	Arrived	Departed	Completed	S.T.	O.T.

VEHICLES

Item	Qty.	Hours	Mileage	Tolls

EQUIPMENT

Item	Qty.	Unit

MATERIALS

Item	Qty.	Unit

JOB DESCRIPTION

JOB DISCREPANCIES

ETNA Representative

Prepared by _____

Client Authorization _____

Organization _____

PROJECT

☐ Continue ☐ Completed